# SIEMENS

# Siremobil Compact L

# Replacement Instructions

## 15" TFT Display 71 42 354

English

# 2        Replacement of the 15" LCD Color TFT Display

## Document revision level

The document corresponds to the version/revision level effective at the time of system delivery. Revisions to hardcopy documentation are not automatically distributed.

Please contact your local Siemens office to order current revision levels.

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## Notes and symbols

**Emphasized texts in technical documentation have the following meaning:**

| ⚠ DANGER | **DANGER indicates an immediate danger that if disregarded will cause death or serious physical injury.** |
|---|---|

| ⚠ WARNING | **WARNING indicates a possible danger that if disregarded can cause death or serious physical injury.** |
|---|---|

| ⚠ CAUTION | **CAUTION used with the safety alert icon indicates a possible danger that if disregarded will or can lead to minor or moderate physical injury and/or damage to property.** |
|---|---|

| NOTICE | **NOTICE used without the safety alert icon indicates a possible danger that if disregarded may or will lead to an undesirable result or state other than death, physical injury or property damage.** |
|---|---|

# 4      Replacement of the 15" LCD Color TFT Display

## Validity of these instructions

These instructions are valid for the replacement of the 15" LCD Color TFT Display, part no. 07142354.

## Required documents

- System manual and Service instructions of the system.

## Required tools, measurement and auxiliary devices

| NOTE | **All tools, measurement and auxiliary devices with the exception of those marked "*", are listed along with their specifications in the STC (Service Tools Catalogue).** |
|------|---------|

- Protective conductor meter     (e.g. Safety tester UNIMET 1100 ST, part no. 51 38 727)
- Tool kit*
- 1 set Allen keys*
- Luminance meter             (e.g. SMfit Kit luminance meter, part no. 88 81 281)

## Available spare parts

The following spare parts are available:

| Part description | Part number | Remarks |
|---|---|---|
| 15" LCD Color TFT Display (REP) | 07142354 | External switched-mode power supply is included in the repair kit. 230V ~ Power cable not included. |
| External switched-mode power supply | 07141083 | 230V ~ Power cable not included. |
| Display holder | 07142347 | Fastening screws not included |

## Safety Information

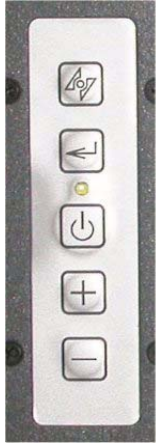| ⚠WARNING | **Risk of physical injury or death and property damage!**<br>**Observe**<br>   - **the product-specific safety information in these instructions and the service instructions of the product,**<br>   - **the general safety information in the instructions TD00-000.860.01... and**<br>   - **the general safety information according to ARTD Part 2.**<br><br>**Noncompliance can lead to death, physical injury or property damage.** |
|---|---|
| ⚠WARNING | **Electrical voltage**<br><br>**Certain components inside the TFT Display are under high voltage!**<br><br>**Do not open the TFT Display housing! This is not necessary in a service situation.**<br><br>**Do not insert objects into the TFT Display housing!** |
| ⚠WARNING | **Electrical voltage!**<br>**Noncompliance can lead to death, physical injury or property damage.**<br><br>**After completing all service work and attaching all system covers, you must perform a protective ground wire test according to ARTD-002.731.17... .**<br>**The protective ground wire resistance must not exceed 0.2 ohms.** |
| ⚠CAUTION | **Risk of being burned by hot parts or components!**<br>**Noncompliance can lead to light or medium burns, especially of the hands.**<br><br>**Once the covers have been removed, parts or components (e.g. power components, heat sinks, solenoid brakes) become accessible which may exhibit temperatures of up to 50°C in operation. To prevent burns, switch off the system power supply before contacting any parts or components and let the system cool off for at least 5 minutes before resuming work.** |
| ⚠CAUTION | **Electrical voltage!**<br>**Noncompliance can lead to property damage.**<br><br>**ESD protection guidelines must be observed when servicing.** |

## Operating key switches

| NOTE | The key switches are fitted on the back of the TFT display. |
| --- | --- |

|  | Name of key | OSD not active | OSD active |
| --- | --- | --- | --- |
|  | **MENU** | Open OSD menu | Exit OSD menu |
|  | **ENTER** |  | Enter function |
|  | **POWER** | TFT Display ON/OFF | |
|  | **UP** | Search Video Input | Increase value |
|  | **DOWN** | Search Video Input | Decrease value |

### Unlocking / Locking the OSD Menu

Locking or unlocking is performed with the same work steps.

- Switch off the display.

- During power on, press and hold the keys "UP" and "DOWN" simultaniously for approx. 10 seconds.
  If the OSD menu was locked, the message "OSD is locked" is displayed.

### POWER

TFT Display on or off.

### MENU

Opens or closes the OSD menu.

The OSD menus are described in the user manual of the TFT Display.
The OSD menu will be closed automatically after 20 seconds.

| NOTE | For the adjustments, set the OSD time to "Off" (permanent visible OSD menu) by selecting the OSD menu "Options" - "Onscreen Menu" - "OSD Time". |
| --- | --- |
|  | After the adjustments, set it back to the default value (20 seconds) |

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### ENTER

Selects the available sub menu or parameter.

If the parameter was changed, the enter key confirms the selected value and returns to the previous displayed OSD menu.

### UP / DOWN

If the OSD menu is inactive (not visible), pressing the key selects the automatic search of a video signal at the video input connectors.

If the OSD menu is active, pressing the key up or down scrolls though the available menu items of the OSD menu (highlighted in blue)
or changes the available parameter value (if highlighted in red).

## Troubleshooting

### External switched-mode power supply

- Measure the output voltage, printed on the external switched-mode power supply.

- It can also be checked by swapping the low voltage connectors from one to the other installed TFT display.

### TFT Display

- Depending on the malfunction, ensure that the display is the defective part.

| NOTE | **The TFT display includes no repairable parts and has to be changed completely if defective.** |
| --- | --- |

- Check the switched-mode power supply.
- Check the connectors (low voltage input, video signal input)
- Check the video signal of the MEMOSKOP with the SMPTE test pattern
  (300mV Sync +/- 10%, 1Vss +/- 10% (in 100% peak white field)).
- Check the input selection switch (at the bottom side of the TFT display).
  The switch can be set in 3 positions:
  1. Position to the rear: VGA input selected
  2. Middle position: BNC-Input selected, 75Ohm termination resistor is off.
  3. Position to the front: BNC input selected, 75 Ohm termination resistor is on.
- Check the settings of the on screen menu, in accordance with the user manual.

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## Replacements

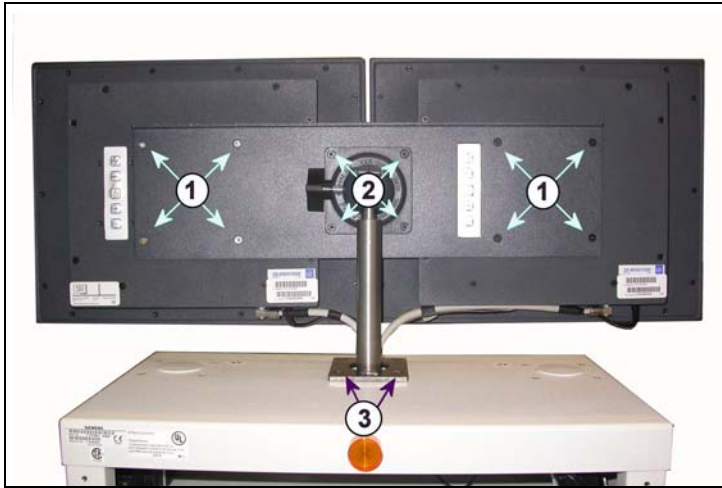### Replacing the display holder



Fig. 1

- Unplug all connectors from the display(s).
- Loosen the display(s) from its(their) holders (4 screws each, see 1 / Fig. 1).
- Unscrew the holder from the monitor cart (3 / Fig. 1).
- Install the new holder on the monitor cart.
- If 2 TFT displays are present, install the extension plate on the holder and fix it in the position, shown in Fig. 1 with the 4 screws 2 / Fig. 1.
- Install the display(s) on the holder (1 / Fig. 1).
- Reconnect the low voltage connector and video signal connector to each TFT display.
- Check the functions of the TFT displays.

## Replacing the switched-mode power supply

| NOTE | The switched-mode power supplies are installed in the log book compartment and are fixed with cable ties. |
|------|---|



Fig. 2

- Disconnect the low voltage plug from the TFT display.

- Disconnect the power plug of the switched-mode power supply.

- Loosen the cable ties of the low voltage cable and pull it back to the log book compartment.

- Take out the switched-mode power supply from the log book compartment.

- Install the new switched-mode power supply in the log book compartment, using new cable ties.

- Install the low voltage cable to the TFT display and connect it.

- Fix the low voltage cable with cable ties.

- Connect the power plug to the switched-mode power supply.

- Check the function of the TFT display.

## Replacing the TFT display

- Disconnect the low voltage plug from the TFT display

- Disconnect the VGA plug from the TFT display.

- Loosen the 4 screws at the rear side of the TFT display and remove it from the holder

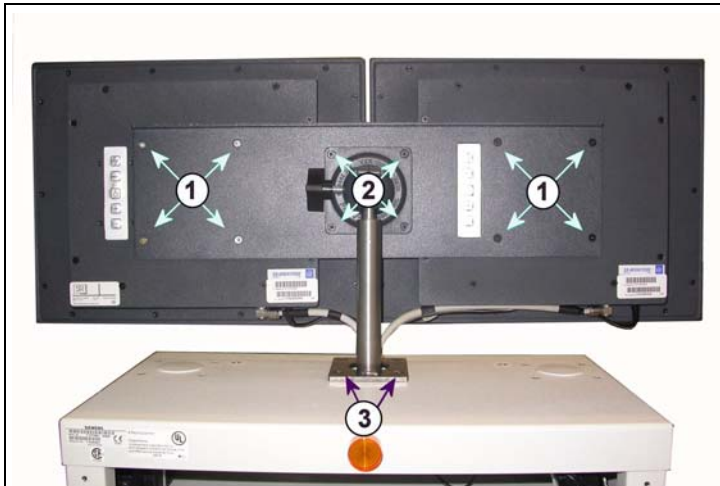| NOTE | **Hold the TFT display while loosening the mounting screw to prevent damage to the TFT display or the environment** |
|------|------|



Fig. 3

- Install the new display with the 4 mounting screws.

- Connect the low voltage plug and the VGA plug at the new display.

- Check the input selection switch (at the bottom side of the TFT display).
  The switch can be set in 3 positions:

Position to the rear: VGA input selected
  - Set this position, if VGA video cables are used.

Middle position: BNC-Input selected, 75 Ohm terminating resistor is off.
  - Set this position only, if additional video components are installed at the same video source as the TFT display.

Position to the front: BNC input selected, 75 Ohm terminating resistor is on.
  - Set this position, if BNC video cable is used and no additional video component is installed at the same video source as the TFT display is connected.

- Check the functions of the TFT displays.

- Check the automatically detected video mode.

- Check the geometry of the displayed image.

- Adjust the brightness, contrast and back light intensity.

### Check of the automatically detected video mode

| NOTE | In the normal case, the signal source and mode will be detected automatically. |
|------|--------------------------------------------------------------------------------|
|      | However, if needed, the programming can be done manually. |
|      | See "Manual programming" |

- The basic unit and the monitor cart are connected to each other; the system is fully functional.

- The Memoskop video frequency is set correctly.

| NOTE | For systems with 50Hz camera system: the video frequency has to be programmed to 50Hz. |
|------|----------------------------------------------------------------------------------------|
|      | For systems with 60Hz camera system: the video frequency has to be programmed to 60Hz. |

- Scroll to the "Mode Info" menu and select it by pressing the "Enter" key.

- Compare the displayed values, with the values in the table Tab. 1.

|         | 50 Hz       | 60Hz        | Remarks                        |
|---------|-------------|-------------|--------------------------------|
| **Mode** | 614 x 514   | 640 x 444   |                                |
| **Clock** | 13,839 MHz | 13,999      | (floating value)               |
| **H Freq.** | 16,301 kHz | 16,549 kHz | (floating value)               |
| **V Freq.** | 50,002    | 59,524      | +/- 1Hz                        |
| **Rows** | 324         | 278         | +/- 4 rows                     |
| **H Pol** | None       | None        |                                |
| **V Pol** | None       | None        |                                |
| **Type** | SoG/I       | SoG/I       | (Sync on Green / Interlaced)   |
| **PDEN** | H15/L11     | H15/L11     |                                |
| **Entry** | 1 Current  | 0 Current   |                                |

Tab. 1

- If the values are different to table Tab.1, follow the description "Manual programming" (page 16).

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### Geometry

### Requirements

- The basic unit and the monitor cart are connected to each other;
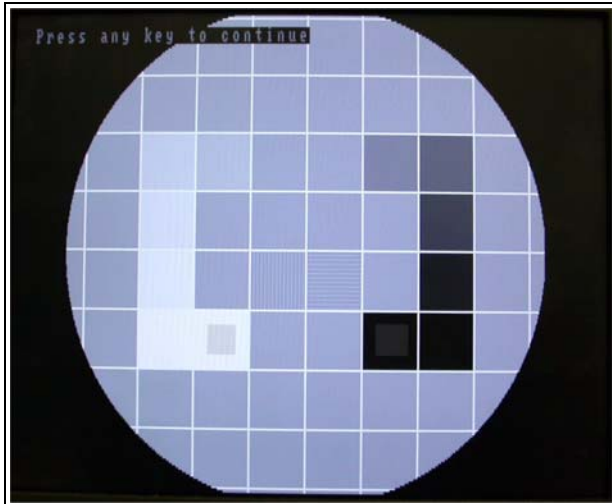the system is fully functional.



Fig. 4

- The basic unit and monitor cart are connected to each other. The Memoskop is synchronized by the VIDEOMED DC camera.

- At the MEMOSKOP, call up the SMPTE test pattern. (Technical setup)

- Check the geometry of the displayed test pattern. It should be displayed as shown in Fig. 4. If adjustments are necessary, follow the description "Manual programming" (page 16).

- Disconnect the basic unit from the monitor cart (disconnect X10). The MEMOSKOP is in stand alone mode (internal synchronization).

- Check the geometry of the displayed test pattern. It should be displayed as shown in Fig. 4. If adjustments are necessary, follow the description "Manual programming" (page 16).

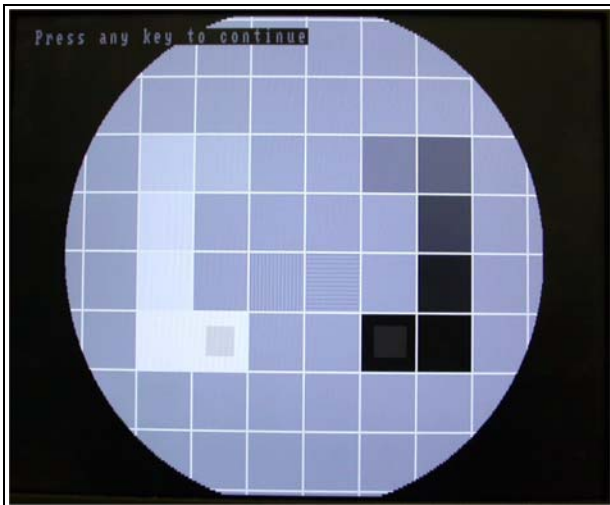### Brightness, contrast and back light

.



Fig. 5

| NOTE | For the adjustment, set the OSD time to "Off" (permanent visible OSD menu) by selecting the OSD menu "Options" - "Onscreen Menu" - "OSD Time". |
|------|------|
| | After the adjustments, set it back to the default value (20 seconds). |

| NOTE | For correct adjustments of the brightness, contrast and back light intensity, the TFT Display needs a warmup phase of 20 minutes. |
|------|------|
| | The MEMOSKOP brightness/contrast curve LUT2 must be selected for both displays. |

### Requirements

- The basic unit and monitor cart are connected to each other. The Memoskop is synchronized by the VIDEOMED DC camera.

- At the MEMOSKOP, call up the SMPTE test pattern. (Technical setup)

- At the Memoskop keyboard, select the brightness/contrast curve **LUT 2** for both displays.

### Adjustments

- At the MEMOSKOP, LUT2 must be selected for both monitors

- Activate the OSD menu on the TFT display.

- Scroll to the menu "Picture Setup" with the "UP" and "DOWN" key and select it with the "Enter" key.

- Scroll to the corresponding line Brightness, Contrast or Back light intensity with the "UP" and "DOWN" key and select it with the "Enter" key.

- Set Brightness, Contrast and Back light intensity to the middle value "50%" and confirm it by pressing the "Enter" key.

- Scroll to the line Brightness with the "UP" and "DOWN" key and select it by pressing the "Enter" key.

- Set the Brightnessso that the 5% field in the SMPTE test pattern is visible
  Measure and set the luminance in the 0% field of the SMPTE test pattern to 0.45cd/m² +/- 0.1 cd/m².
  Confirm the value by pressing the "Enter" key.

- Scroll to the line contrast with the "UP" and "DOWN" key and select it by pressing the "Enter" key.

- Set the contrast so that the 95% field of the SMPTE test pattern is still visible. The 100% field may not show a clipping or blooming effect.
  Confirm the value by pressing the "Enter" key.

- Scroll to the line Back light intensity with the "UP" and "DOWN" key and select it by pressing the "Enter" key.

- Measure and set the luminance in the 100% field of the SMPTE test pattern with the back light intensity to 140 cd/m² +/- 15 cd/m².
  Confirm the value by pressing the "Enter" key.

- The 5% field and 95% field in the SMPTE test pattern must be still visible.

- Repeat the adjustment steps for Brightness and Back Light intensity as described above until the values are reached.
  - The 0% field must reach the luminance value 0,45 cd/m² +/- 0,1 cd/m²
  - The 100% field must reach the luminance value 140cd/m² +/- 10 cd/m².
  - The 5% field and 95% field must be still visible.
  - If two TFT displays are installed the image impression of both displays should be similar.

- Press the "Menu" key until the main menu is displayed.

- Scroll to the "Exit" menu with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- The changed parameter values will be stored permanently.

- Wait a view seconds. Switch off and on the TFT Display.

- Check the luminance values again to ensure the correct storage of the values.

- Disconnect the basic unit from the monitor cart (disconnect X10). The MEMOSKOP is in stand alone mode (internal synchronization).

- Check the luminance values in stand alone mode again.

| NOTE | **Set the parameter OSD Time back to the default value of 20 sec. (OSD menu "Options" - "Onscreen Menu" - "OSD Time").** |
|---|---|

## Final work steps

Close all covers, if opened.

Perform the Protective conductor test in accordance to the ARTD002.731.17...

The protective conductor resistance may not exceed 0,2 Ohms.

## Manual programming

| NOTE | In the normal case, the correct mode will be detected automatically. |
|------|------|
| | If the previos checks and adjustments could be carried out successfully, skip this section. |

### Legitimation

- Open the OSD menu.

- Scroll to the menu "Options" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to the sub menu "Legitimation" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to the line "Code A:" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the value "49" with the "Up "or "Down" keys
  and confirm the value by pressing the "Enter" key.

- Scroll to the line "Code B:" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the value "60" with the "Up" or "Down" keys
  and confirm the value by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

### Interlaced mode

- Scroll to the menu "Presentation" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to the line "Interlaced" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the parameter to "AUTO" with the "UP" or "Down" keys
  and confirm the value by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.
  The main menu is displayed.

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**PDEN ON / OFF settings**

- Scroll to the menu "Mode Adjustment" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to the menu "Mode Special" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to the line " PDEN ON" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the parameter to "15" with the "UP" and "DOWN" key
  and confirm the value by pressing the "Enter" key.

- Scroll to the line " PDEN OFF" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the parameter to "11" with the "UP" and "DOWN" key
  and confirm the value by pressing the "Enter" key.

- Scroll to the line " SOG Level" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the parameter to "75" with the "UP" and "DOWN" key
  and confirm the value by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.
  The main menu is displayed.

### Picture Scaling

- Scroll to the menu "Picture Setup" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to the menu "Picture Scaling" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to the line "Scaling" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the parameter to "ON" with the "UP" and "DOWN" key
  and confirm the value by pressing the "Enter" key.

- Scroll to the line "Picture Width" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the parameter to "614" for 50Hz video frequency or to "640" for 60Hz video
  frequency with the "UP" and "DOWN" key
  and confirm the value by pressing the "Enter" key.

- Scroll to the Line "Picture Height" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Set the parameter to "514" for 50Hz video frequency or to "444" for 60Hz video
  frequency with the "UP" and "DOWN" key
  and confirm the value by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key
  and select it by pressing the "Enter" key.
  The main menu is displayed.

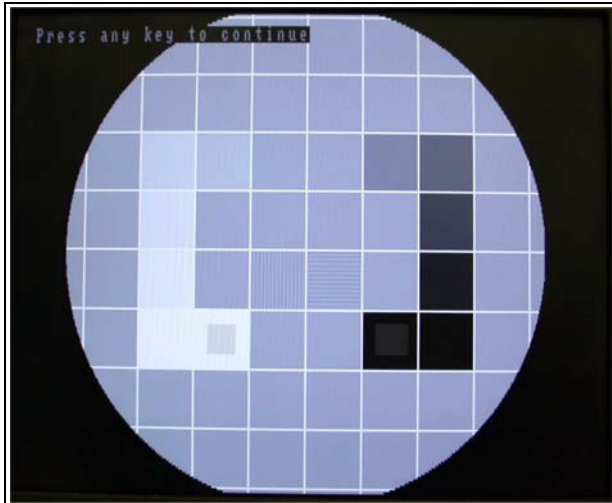**Horizontal and vertical position**



Fig. 6

- Scroll to the menu "Mode Adjustment" with the "UP" and "DOWN" key and select it by pressing the "Enter" key.

- Scroll to the line "Horizontal Position" with the "UP" and "DOWN" key and select it by pressing the "Enter" key.

- Set the parameter to "175" for 50Hz video frequency or to "160" for 60Hz video frequency.

- If necessary change the value with the "UP" and "DOWN" keys, till the horizontal position of the displayed test pattern is as shown in Fig. 6.

- Confirm the adjusted value by pressing the "Enter" key.

- Scroll to the line "Vertical Position" with the "UP" and "DOWN" key and select it by pressing the "Enter" key.

- Set the parameter to "64" for 50Hz video frequency or to "44" for 60Hz video frequency.

- If necessary change the value with the "UP" and "DOWN" keys, till the vertical position of the displayed test pattern is as shown in Fig. 6.

- Confirm the adjusted value by pressing the "Enter" key.

- Scroll to line "back" with the "UP" and "DOWN" key and select it by pressing the "Enter" key. The main menu is displayed.

### Storage of the parameters

- Scroll to the "Exit" menu with the "UP" and "DOWN" key and select it by pressing the "Enter" key.

- The changed parameter values will be stored permanent.

### Checks

- Switch off and on the display.

- Check the video mode as described in section "Checking the automatically detected video mode".

- Check the Geometry as described in section "Geometry".

- Check the brightness, contrast and back light intensity as described in section "Brightness, contrast and back light"

- Perform the work steps as described in section "Final work steps".

## Changes to previous version

Complete document: Rev. level changed to 02.

Page 11, table Tab1, line "Mode": In column 50Hz, value changed to 614x514

Page 17, value "Picture Width" for 50Hz video frequency changed to 614.

Page 17, value "Picture Height" for 50Hz video frequency changed to 514.